oved For Release 2001/08/27 : CIA-RDP79-00798A000400100 DEPARTMENT OF STATE

Washington, D.C. 20520

BUREAU OF INTERNATIONAL SCIENTIFIC AND TECHNOLOGICAL AFFAIRS

U.S.-U.S.S.R. Programs Secretariat

STATINTL

STATINTL

April 29, 1974

NOTE FOR: CIA -

SUBJECT: Briefing 9:39 a.m., May 2, 1974

Following is a list of NSF personnel who have been invited by the U.S. Working Group Chairman on Microbiology to the briefing at 9:30 a.m., May 2, Room 924 of the Foundation, 1800 G Street, N.W.

Dr. Joshua Leise (U.S. W.G.C.) Office of the Deputy Assistant Director for Research

Dr. Eloise V. Clark
Head of the Molecular Biology Section

Dr. Edward C. Creutz
Assistant Director for Research

Dr. Jerome Fregeau
Executive Assistant to the Deputy Assistant
Director for Research

Dr. Marshall M. Lih Division of Engineering

Dr. John Mehl Deputy Division Director Division of Biological and Medical Sciences

Dr. Richard Ries Office of International Programs

Dr. John Thomas Office of International Programs

Dr. Edward Todd Deputy Assistant Director for Research

merchanology

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Dr. George Tsao Program Manager for Advanced Technology Applications

Dr. Israel Warshaw Deputy Division Director Division of Engineering

I have been informed by Dr. Leise's secretary that all the above have security clearance through Secret.

In addition to the above, Dr. Arthur Humphrey of the College of Engineering, University of Pennsylvania, and Co-Chairman of the U.S. Group, will also attend the briefing. Dr. Humphrey has received, for the day of the briefing, a Secret security clearance from the Department of State.

It is also possible that one or more of the following from this office may attend the briefing: Dr. Oswald H. Ganley, Dr. Royal Wald, All have appropriate security clearance.

and

Adah Sheldon

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IN FULFILLMENT OF THE WORKING PROGRAM FOR SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE U.S.A. AND U.S.S.R. IN THE FIELD OF "PRODUCTION OF SUBSTANCES BY MICROBIAL MEANS"FOR THE PERIOD JANUARY 1, 1974 TO DECEMBER 31, 1974.
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Joint Book Writing	Exchange Visits on Computer Control	Conference on Mechanism of HC uptake by Microbes	Conference on Instrumentation	3rd Meeting Working Group	NT EVENT NAME
· v	ы	W	, M	10	NUMBER OF PARTICIPANTS USSR USA
·	20	5 7	ហ	10	OF LPANTS USA
1974	1974-75	Fall 1974	Aug.1974	June 10 to June 20	DATE OF ACTION
Phila., USA in con- nection with event 2	Kazan MIT J. of P. Widener College	Moscow, USSR	Phila., USA	Wash.,D.C.	PLACE
2 weeks	faculty for 3 months 2 post-doctorals for 1 years	2 weeks	2 Weeks	2 weeks	PERIOD OF ACTION
Main Board	Main by Board strais year	Main Board & Inst. Prot. Synth,	Main Board G Kazan Inst.	Main Board	RESPONSIBLE ORGANIZATIONS USSR USA
NSF	NSF	NSF 6 Kansas State Univ.	NSF & P.	NSF 6 Dept.of State	IBLE ZATIONS USA
Project 2 Task 6.1	Project Task 4.1eease	Project (Task 2.1	Project 7 Task 1.19-007	Recommendation in ORecord of Ad	REFERENCE BASIS 300
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IN FULFILLMENT OF THE WORKING PROGRAM FOR SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE U.S.A. AND U.S.

MEANS"FOR THE PERIOD JANUARY 1,

1974 TO DECEMBER 31, 1974.

BY MICROBIAL

AND U.S.S.R.

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USSR

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RESPONSIBLE ORGANIZATIONS

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Approved Fo	or Release 2901/0)8/27 : Cl ∕a -RDI	P79-00798A	0004901	900 1-1 • ENT
	Research Project Development of Systems for Computer Control of Ferm. Systems	Research Project on Theory of HC Uptake by Microbes	Research Project on Ferm.Dis- persion	Research Project on Fermentation	EVENT
	10 8	10 4	4	. 4	NUMBER OF PARTICIPANTS USSR USA
	begin July 1, 1974	begin July 1, 1974	begin K July 1,1974	begin U. July 1,1974	DATE OF PI ACTION
	Kazan Inst. 3 Chem.Tech. ye. Univ. of Penna. Mass.Inst.Tech.	Inst. Prot. 3 Synth. & yea Kansas State Univ.	Kazan Inst. 3 of Chem. years Tech.	of P. 3 years	PERIOD OF ACTION

Project Projec Tasks 3.2
Project Project 4.2
Approved For Release 2001/08/27 Tasks

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9	12 A	17 approved	16 I For Re	ے lease 2	<u>!</u> 001/08	1	l; RDP79-00	; 798A0004	10 0010001	EVENT
Meeting, ex- 4-6 change of cultures, & field trips	Exchange of 4-7 Junior Scientists	Research ? Program	Working 4-7 Conference	Laboratory 4-7 & Field	4	Fermentable sugars fi	Production of sugar	Enzyme systems for ϵ	Polimery-74 6	NUMBER OF EVENT PARTICIPA NAME USSR
4-6	4-7	•->	4-7	, ,	4	rom agric	from cellulose 6	acoustic imaging	6	NUMBER OF . PARTICIPANTS USSR USA
Dec. 1974	Begin Sept. 1974	Begin Sept. 1974	July 1974	June 1974	1,	cultural solid waste July 1, 1974 The properties and fine of	July 1, 1974	and holography July 1, 1974	Sept. 3-16 1974	DATE OF ACTION
Wash.,D.C.	Various Sites	Various Sites	Beltsville, Md	Various Sites	Inst. Biosyn. Protein Sub.	e Inst. Biosyn Protein Sub.	Inst. Biosyn. Protein Sub.	hy U. Pa. Moscow U.	Moscow	PLACE
2 wiks.	l yr.	2 yrs.	3-5 days	3 wks.	Corning Glass	Iowa State Main Univ. Boar	U. Cal. Berkeley	5 yrs.	2 wks.	PERIOD OF ACTION
Main Board	Main Board	Main . Board .	Mein Board ,	Main Board	Main Board	Main Board	Main Board	Main Board	Main Board	RESPONSIBLE ORGANIZATIONS USSR USA
NSF	NSF	NSF	NSF	NSF	NSF	NSF	NSF,	NSF	NSF	TONS USA
NSF Froject 5	Project 5	Project 5	Project 5	Project 5	Project 4,	Project 4,	Project 4,	Project 4,	Project 4,	REFERENCE BASIS
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IN FULFILMENT OF THE WORKING PROGRAM FOR SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE U.S.A. AND U.S.S.R. IN THE FIELD OF "PRODUCTION OF SUBSTANCES BY MICROBIAL MEANS"FOR THE PERIOD JANUARY 1, 1974 TO DECEMBER 31, 1974.

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	•	26	25	24	23	22	21	20	EVENT
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	& Development trial Methods	Development Isolation	Development Production	ein ase	Research on Cultivation of Yeast and Bacteria on Various Substrates	on .			
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Research Projects on genetics of antibiotic	Conference on genetics antibiotic producing cultures	Conference on genetics non antibiotic produc-ing cultures			NAME P	IN AN ME
3 institu-	6	\sigma'			NUMBER OF PARTICIPANTS USSR USA	THE FIETANS"FOR
3 1 insti-	6	Vī	٠		NTS	MENT CAL C LD OF
1975	Spring 1975	Spring 1975		* .	DATE OF ACTION	OF THE WORK COOPERATION "PRODUCTION ERIOD JANUA"
US and USSR	Leningrad	Chicago or Seattle		· .	PLACE	IN FULFILLMENT OF THE WORKING PROGRAM FOR SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE U.S.A. AND U.S.S.R. IN THE FIELD OF "PRODUCTION OF SUBSTANCES BY MICROBIAL MEANS"FOR THE PERIOD JANUARY 1, 1974 TO DECEMBER 31, 1974.
3 years	3 days	2 days	Ŷ.		PERIOD OF ACTION	FOR SCII U.S.A. / NCES BY NCES
Wain Board	Main Board	Main Board			RESPONS ORGANIZ USSR	ENTIFIC AND U.S. AICROBIA BER 31,
NSF	NSF	NSF			RESPONSIBLE ORGANIZATIONS USSR USA	S.R. L 1974.
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Project de Task 1.3Re	Project Task 1.200	Project R Task 1.0GAR :8/27	DD70	00707	REFERE BASI A06040010	
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Research projects on

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Task 1.5 Project 3

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B. thuringiensis and B. popilliae		tics of insect patho gens	Workshop on insect control	Research projects in genetic engineering and molecular biology	Conference on genetic engineer- ing	esearch projects	EVENT	
150.	α ω	· α		n 3	Ŋ	0	NUMBER OF PARTICIPANTS USSR USA	IN FULFILLMENT AND TECHNICAL O IN THE FIELD OF MEANS"FOR THE 1
щ	w	Vi	20	ω	5	6	ANTS USA	ILMENT
Spring 1975	Spring 1976	Spring 1975	Oct. 1974	Spring 1976	Spring 1975	1 from each country for 12 months	DATE OF ACTION	(C) (E) (C)
Manhatan, Kans, & Armenia	US & USSR	Armenia	East Lansing, Mich.	US & USSR	Stanford	US & USSR	PLACE	그워걸다
1 year	3 years	3 days	, 3 days	3 years	4 days	3 years	PERIOD OF ACTION	FOR SCI U.S.A. UCES BY
Main Board	Main Board	Main Board	Main Board	Main Board	Main Board	Main Board	RESPONSIBLE ORGANIZATIONS USSR USA	OR SCIENTIFIC S.A. AND U.S.S.R. ES BY MICROBIAL DECEMBER 31, 1974
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ı ,	F 2		. • • •					
Project 3 Task 2.4	Project 3prove	Project For Task 2.2 c	Project se	Project Pask 1.701/98/27	Project RD Task 1.60	Project 0979	REFEROMOE BASAS	00011-1
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IN'FULFILLMENT OF THE WORKING PROGRAM FOR SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE U.S.A. AND U.S.S.R. IN THE FIELD OF "PRODUCTION OF SUBSTANCES BY MICROBIAL MEANS"FOR THE PERIOD JANUARY 1, 1974 TO DECEMBER 31, 1974.
WORKING PROGR TION BETWEEN T JCTION OF SUBS' JANUARY 1, 197
AM FOR SCIENTII HE U.S.A. AND U IANCES BY MICRO TO DECEMBER 3
FIC J.S.S.R. DBIAL B1, 1974

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2	<u> </u>	Approv	ed For R	ease 20t	71/08/2	: CIA-RD	79-0079	A0004601	00011-1
genetic analysis in bacillus			Exchange of personnel in yeast genetics programs	Research project on genetic analysis	Research project on	Conference on mutagenesis and recombination	Conference on research projects (2.3)	•	
N) No) w	ω	W	Н	10	+	NUMBER PARTIC USSR	IN THE FI
N) <u> </u>	ω	ω	w	۲	\sigma	4	NUMBER OF PARTICIPANTS USSR USA	HIL
Fall 1974	Fall 1974	Annual	1 from each country for 12 months	Fall 1974 & Spring 1975	Spring 1975	Spring 1975	Spring 1977 1978	DATE OF ACTION	OF "PRODUCTION OF SUITE PERIOD JANUARY 1, 19
Waltham, Mass. 3 Rochester, NY Moscow & Armenia	Chicago & Armenia	Alternating US & USSR	US & USSR	Waltham, Mass Leningrad & Moscow	Berkeley & Leningrad	Leningrad	US & USSR	PLACE	OF OF
3 years nia	3 years	3 days	3 years	s. 3 years	3 years	4 days	2 days	PERIOD OF ACTION	SUBSTANCES BY MICROBIAL 1974 TO DECEMBER 31, 1974
Main Board	Main Board	Main Board	Main Board	Main Board	Main Board	Main Boa rd	Main Board	RESPO ORGAN USSR	AND U.S MICROBI BER 31,
NSF	NSF	NSF	NSF	NSF	NSF	NSF	NSF	RESPONSIBLE ORGANIZATIONS USSR USA	1974.
Project 3 Task 4.2	Project 3 Task 4.1	Project 3 Task 3.2 & 3	Project 3 Task 3.2 & ;	Project 3 Task 3.3	Project 3 Task 3.2	Project 3 Task 3.1	Project 3 Task 2.3	REFERENCE BASIA	•
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Symposium on genetic 20 methods to be published

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US or USSR

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in book

Conference on research projects (4.1 & 4.2)

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Alternating 3 days US & USSR

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12 months country for l from each

Exchange of personnel (4.1 & 4.2)

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DATE OF ACTION	OF THE WOO COOPERATION F "PRODUCT! PERIOD JANG
PLACE	IN FULFILLMENT OF THE WORKING PROGRAM FOR SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE U.S.A. AND U.S.S.R. IN THE FIELD OF "PRODUCTION OF SUBSTANCES BY MICROBIAL MEANS"FOR THE PERIOD JANUARY 1, 1974 TO DECEMBER 31, 1974.
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RESPONSIBLE ORGANIZATIONS USSR USA	ENTIFIC NND U.S.S. AICROBIAL SER 31, 19
SIBLE ZATIONS USA	R. 74.

REFERENCE BASIA Project 3 794.2 Project 3 RDP794.2 Project 3 RDP794.2 Project 3
Task 4.3 (summary Approved For Release 2001708/27 :

	Means, Inclu	WORKING PROGRAM and Utili	Develop
The state of the Products	Means, Including Research into Different Aspects of loxicity	WORKING PROGRAM and Utilization of Food and Feed Proteins by Microbial	pment of Technology for Lindborgham

PROJECT TITLE and

and Dr. Daniel I.C. Wang, M.I.T., U.S.A

PROJECT NO.

PROJECT COORDINATOR Dr. Gregorian.

2.4	2.3		2.2	2.1	2A	н	TASK
Methods Nucleic		. • • • • • • • • • • • • • • • • • • •	Selection Substrate	Biological Value and Toxicity	ARRANGE WORK-SHOP MEETINGS	Exchange of Publications	NAME OF TASK OR SUB-TASK
of Decreasing Acid Content	Single-Cell Protein For Food		of Microbe * Systems	lue .	HOP MEETINGS ON SI	Gregorian	NAME OF PARI AND COOPERATING U.S.S.R.
A.J. Sinskey, M.I.T. S.R. Tannenbaum, M.I.T.	S.R. Tanuenbaum, M 1.1. C.C. McDonald, DuPont C. Atkins, Std. Ind. C. Rha, M.I.T. M. Milner, UN (PAG) T. Labuza, Univ. Minn.	A. Laskin, Esso C. Wilke, U. Calif. J. Litchfield, Battell E. Field, Std. Ind. A. Humphrey, U. of Pa. G. Tsao, N.S.F.	D.I.C. Wang, M.I.T. C.L. Cooney, M.I.T. C humlan II Missouri	V. Young, M.I.T. N. Scrimshaw, M.I.T. B. Oser, F & D Res. Lab. D. Calloway, U. Cal	ON SINGLE-CELL PROTEIN RESEARCH (PART A) TOTAL: 20 U.S. PART. AND 6 U.S.S.R. PART DURATION: 3 DAYS	D.I.C. Wang M.I.T.	NAME OF PARTICIPANTS COOPERATING INSTITUTIONS U.S.
T. Fall, 1974	1.1. Fall; 1974 ont d. (finn.	alif. Battelle Ind. , of Pa.	Fall, 1974	Fall, 1974	ARCH (PART A)	July, 1974 and continuing	DATE AND DURATION OF TASK
Meet in U.S.A.	Meet in U.S.A.		Meet in U.S.A.	Meet in U.S.A.	RT	Exchange of publications and Conference Reports	FORMS OF COOPERATION
=		:	. a	Planning, Initia and Reporting on Cooperative Prog		Establish and Continue Basis of s Communication	EXPECTED RESULTS

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The rest of the transfer of the transfer of the transfer of		WORKING PROGRAM Development of Technology for Industrial Production
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Thattading	and Utilization of Food and Feed Proteins by Microbial	velopment of
לייייים	of Food	Technolo
1	and	ogy f
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200	by Microbi	Production
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PROJECT NO.

PROJECT COORDINATOR Dr. Gregorian, U.S.S.R. and Dr. Daniel I.C. Wang, M.I.T., U.S.A. F.O TECT TILE Means, Including Research into Different Aspects
Toxicity and Biological Value of Such Products

DATE AND

TASK	NAME OF TASK OR SUB-TASK	NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.	G INSTITUTIONS U.S.	DURATION OF TASK	FORMS OF COOPERATION
28	ARRANGE WORK-S	HOP MEETINGS ON SING TO DI	ARRANGE WORK-SHOP MEETINGS ON SINGLE-CELL PROTEIN RESEARCH (PART 2) TOTAL: 20 U.S.S.R. PART & 6 U.S. PART DURATION: 3 DAYS	1 (PART 2) 6 U.S. PART	
2.1	Biological Value and Toxicity	ue	N.S. Scrimshaw, M.I.T.	Fall, 1975	Meet in U.S.S.R.
2.2	Selection of Microbe- Substrate Systems	Hcrobe-	D.I.C. Wang, M.I.T. E. Field, Std. Ind.	Fall, 1975	Meet in U.S.S.R.
. 2.3	Single-Cell Protein	otein	C. Rha, M.I.T. M. Milner, UN (PAG)	Fall, 1975	Meet in U.S.S.R
2.4	Methods for Decreasing	creasing	S.R. Tannenbaum, M.I.T.	Fall, 1975	Meet in U.S.S.R.

5 USSR Part.

4.1 & 4.2 at M.I.T. sis of Results

Optimistic Economic Potentials

USA- 5 USA Part.

Development of Technology for Industrial Production WORKING PROGRAM and Utilization of Food and Feed Proteins by Microbial Means, Including Research into Different Aspects of Toxi-

PROTECT TITLE city and Biological Value of Such Products

PROJECT COORDINATOR Dr. Gregorian and Dr. Wang

PROJECT NO.

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4.3	4.2	4.1	4	3 2	٠	ω		TASK NUMBER
.3 Comparison of Basic Variables & Choice of Substrate	Cultivation o on Methanol, Agricultural	1 Cultivation of Yeast on Molasses, Ethanol, Methanol, Hydrocarbons, With Techno-Economic Analysis	RAW MATERIAL A	2 Regulation and Control Amino Acid Content of SCP	Pacterial and Yeast Culture	CHOICE AND SE		NAME OF TASK OR SUB-TASK
Basic poice	f Bacteria Ethanol,	f Yeast thanol, ocarbons, onomic	ND ECONOMIC ANALY	Control tent of SCP	•	CHOICE AND SELECTION OF MICROORGANISMS	WOI	NAME OF PAND COOPERATI
M.I.T. U. of Pa. U. Missouri	G. Dunlap U. Missouri (Cellulosics)	D.I.C. Wang, M.I.T. (Hydrocarbons) C.L. Cooney, M.I.T. (Methanol) A.E. Humphrey U. of Pa. (Molasses)	RAW MATERIAL AND ECCNOMIC ANALYSIS OF SCP PRODUCTION	A.L. Demain, M.I.T. S.R. Tannenbaum, M.I.T.	NRRL Cult. Coll. G. Silverman, U.S. Natick M.I.T. Univ. of Wis. L.S.U.	R. Donovick , ATCC	WORKING PROGRAM OF SIX PROBLEM TOPICS	NAME OF PARTICIPANTS COOPERATING INSTITUTIONS U.S.
One Week Fall, 1975	Two Years (197;-1976) U. of Missouri	Two years (1974-1976) Two Years (1974-1976) Two Years (1974-1976) (U. of Pa.)	· .	Fall, 1974 1 Day and Continuing	and Continuing	Fall, 1974	EM TOPICS	DATE AND DURATION OF TASK
Conference to Dis- cuss Progress, Analy- sis of Results From 4.1 & 4.2 at M.I.T.	Exchange of Reports	exchange of velocity	מי מ	Meet in U.S.A. Exchange of Exist- ing Research Re- sults	Exchange	Microbial Culture		FORMS OF COOPERATION
 Bstablish Status aly- on Raw Material om Best Suited With T. Optimistic Eco- 		Specify Economically feasible substrates for SCP Production		Review Past Progress - and Establish New Techniques	Broaden Existing Cultures	Establish and		EXPECTED RESULTS
				u	pr,			

WORKING PROGRAM and Utilization of Food and Feed Proteins by Microbial into Different Aspects of

PROJECT TUTIE Toxicity and Biological '

PROJECT COORDINATOR Dr.

PROJECT NO.

					6		•	U	TASK
	6.4	6.3	6.2	6.1.		5.2	5. 1		TASK NUMBER
Riomass Purification and Production; Overall Process Evlauation; Economic Analysis	Elaboration on Increased	Purifying & Drying	Biomass Recovery	Fermentor Apparatus Design & Scale-up	DEVELOPMENT OF INDUSTRIAL METHODS	Development of Techniques For Reduction of Nucleic Ac By Enzymatic & Physico- Chemical Means	Development of Enzymatic & Mechanical Methods of Protein Release	DEVELOPMENT OF METHODS I	NAME OF NAME TASK OR AND COC
51 S	•				METH	Acids		OR PR	NAME OF COOPERAT
1. Tonnoa, o. trime	⊢ I	T. Labuza, U. Min.	D.I.C. Wang, M.I.T.	D.I.C. Wang, M.I.T.	ODS OF BIOMASS PRODUCTION	A.J. Sinskey, M.I.T. S.R. Tannenbaum, M.I.T.	D.I.C. Wang, M.I.T. (Release)	OF METHODS FOR PROTEIN ISOLATION FROM UNICE	NAME OF PARTICIPANTS COOPERATING INSTITUTIONS U.S.
, , , , , , , , , , , , , , , , , , ,	2 Months	Two Y_ars (1974-1976)	Two Years (1974-1976)	Two Years (1974-1976)		Two Years (1974-1976)	Two Years (1974-1976)	FROM UNICELIULAR MICROORGANISMS	DATE AND DURATION OF TASK
5 US Part.; 5 USSR Part. Meet in USSR	Work-shop with	Exchange of Reports	Exchange of Reports	Exchange of Reports		Exchange of Research	Exchange of Research Report	NISMS	FORMS OF COOPERATION
Scale-up of Biomass Purification & Production	Establish Techno-	Establish & Process	Define Process Parameters for Most Economical Means of Biomass Recovery	Establish Report on Fermentor Design Most Optimal for SCP Cultivation		Information Exchange and Establish Technical and Economic Feasibili- ties	Information Fx*- change to Establish Technical and Economic Feasibili- ties		EXPECTED RESULTS

PROJECT COORDINATOR Dr. Gregorian, U.S.S.R. and Dr. Daniel I.C. Wang, M.I.T.

PROJECT TITLEand Biological V

WORKING PROGRAM Utilization of Food and Feed Proteins by Microbial

into Different Aspects of Toxicity

PROJECT NO

•	σ	7.2	7.1	7	TASK
	BIOLOGICAL VA	Protein Utilization in Preparation of Foods	Protein Isolation, Characterization of SCP	SPECIAL TREAT	NAME OF TASK OR SUB-TASK
A.A. Pokrovsky Nutrition Institute	BIOLOGICAL VALUE AND TOXICITY			SPECIAL TREATMENT OF BIOMASS AND ISOLATED PROTEIN THEREFROM FOR USE IN PREPARATION OF FOODS	NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.
N.S. Scrimshaw, e M.I.T.		T. Labuza, U. Minn.	C. Rha, M.I.T.	OLATED PROTEIN THERE	ICIPANTS INSTITUTIONS
Three Years (1974-1977)		Two Years (1975-1977)	Two Years (1975-1977)	FROM FOR USE IN P	DATE AND DURATION OF TASK
Exchange of Reports		Exchange of Research Reports	Exchange of Research Reports	REPARATION OF FOODS	FORMS OF COOPERATION
Establish Safety of SCP		Establish Protocol & Potential Routes of Prepared Foods From SCP	Definition of Protein Isolation & Characterization of Isolated SCP		EXPECTED RESULTS

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<u>س</u> 3

WORKING PROGRAM

Project No. 2

PROJECT TITLE: Technology Engineering Research and Development of Equipment and Methods for the Computerized Simulation, Design and Control of Processes for Microbial

PROJECT COORDINATORS: Dr. Shamil Yenikeyev, Kazan Institute Chemical Technology Arthur Humphrey, University of Pennsylvania

	TASK NUMBER	
ormont of toobstance	NAME OF TASK OR SUB-TASK	
Date Tormont of tooksidnes and now someons for mossiving the significant	NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.	
at and the ant un	DATE AND DURATION OF TASK	
	FORMS OF COOPERATION	
10.	EXPECTED RESULTS	

peveropment of techniques and new sensors for measuring the significant variables in microbial

processes and assembling equipment for experimental investigations. measurement of microbial dispersion (including measurement of system mentation relative to Development of Instruinterface & software) activity (including mentation relative to Development of Instru-(including computer interface & software) measurement of biomass mentation relative to Development of Instrumentation paper on needed instru-Conference and position interface & software) Kazan Inst. Kazan Inst. Chem. Tech. Yenikeye**v** Chem. Tech. Yenikeye**v** Penna. Penna. Univ. of Humphrey Univ. of Univ. of Penna. Humphrey Humphrey two years. 1974-1976 two years 1974-1976 two years 1974-1976 one week summer 1974 5 USSR part. 5 US part. at Univ. exchange exchange of of Penna. conference research exchange of reports research two man years reports two man years research reports of. developdevelopment ment & theory equipment ment equipment developequipment paper on mentation instruneeded position

Approved For Release 2001/08/27 : CIA-RDP79-00798A000400100011-1

WORKING PROGRAM

Project No. 2

PROJECT COORDINATORS:	PROJECT TITLE:
PROJECT COORDINATORS: Dr. Shamil Yenikeyev, Kazan Institute Chemical Technology Dr. Arthur Humphrey, University of Pennsylvania	Engineering Research and Development of Equipment and Methods for the Computerized Simulation, Design and Control of Processes for Microbial Technology

) •		TASK
	Investigation of momentum, heat, and mass transfer in heterogeneous gas-liquid-liquid type of culture condition	NAME OF TASK OR SUB-TASK
•	, heat, and mas:	NAME OF PAND COOPERATION U.S.S.R.
Tri-ok-ga	s transfer in he	NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.
cook	terogeneous gas-	DATE AND DURATION OF TASK
And for one	liquid-liquid t	FORMS OF COOPERATION
Posicit on	:ype	EXPECTED

ORKING PROGRAM

Project No. 2

			•			
ω •	3.2	3 . 1	Ψ	TASK NUMBER	PF	PF
Conference to integrate results of tasks 1, 2 and 3 and to assist in the design of the experimenta demonstration unit (at Inst. Protein Synth.)	Development of experimental apparatus and taking of data for creation of a model for microbial population behavior in a heterogeneous system	Development of a kinetic theory for behavior of microbes in a heterogen- ous system	Research on microbial population dynamics	NAME OF TASK OR SUB-TASK	PROJECT COORDINATORS:	PROJECT TITLE:
integrate asks 1, 2 and lst in the experimental nunit (at n Synth.)	perimen- taking ion of bial or in a	of a kinetic behavior of a heterogen-	l populati	AND	Dr. Shamil Dr. Arthur	Engineerin Computeriz Technology
? Inst. Prot. Synthesis Yenikeyev Kazan Inst. Chem. Tech.	Yenikeyev Kazan Inst. Chem. Tech.		on dynamics of	ì		Engineering Research and Computerized Simulation, Technology
Humphrey Univ. of Penna. Erickson Kansas State Univ.		Erickson Kansas State Univ.	of heterogeneous :	NAME OF PARTICIPANTS COOPERATING INSTITUTIONS U.S.S.R. U.S.	Yenikeyev, Kazan Institute Chemical Technology Humphrey, University of Pennsylvania	Engineering Research and Development of Equ. Computerized Simulation, Design and Control Technology
one month summer 1976	two years 1974-1976	two years 1974-1976	systems	DATE AND DURATION OF TASK	Chemical Techn nsylvania	f Equipment an ntrol of Proce
working conf. on equip. design	exchange of research reports	exchange of research reports	,	FORMS OF COOPERATION	ology	Development of Equipment and Methods for the Design and Control of Processes for Microbial
equip desig spcci tions	creat of a model compu contr appl.	model devel ment		EXP E RESU		the bial

	•			
4.2	4.1	NUMBER 4.	PRO	PRO
Investigation on both the theoretical and practical aspects of computer control of fermentation systems	Exchange visits in order to coordinate the plans for the computer coupled fermentation control systems	SUB-TASK U.S.S.R. U.S. Development of Engineering techniques for optimal design o and automatic control of industrial fermentation processes	PROJECT COORDINATORS: NAME OF TASK OR	PROJECT TITLE:
both and s of of tems	in nate he d ntrol	neering te	Dr. Shamil Dr. Arthur AND	Engineering Computerized Technology
Yenikeyev Kazan İnst. Chem. Tech.	Yenikey¢V Kazan Inst. Chem. Tech.	U.S.S.R. techniques for opt idustrial fermentat	Yenikeyev, Humphrey, I	g Research and ed Simulation,
Cooney-Mass. Inst. Tech. Humphrey Univ. of Penna.	Humphrey Univ. of Penna. Gooney-Mass. Inst. Tech. Jefferis Widener College	Hn.	Yenikeyev, Kazan Institute Chemical Humphrey, University of Pennsylvania NAME OF PARTICIPANTS COOPERATING INSTITUTIONS DURATION	Development of Eq Design and Contro
1974-1976 two men years M.I.T. one man year U. of P.	two men (each side) exchange visits one at post- doctoral level for one year, one at faculty level for three months	TASK industrial scale	hemical Technology sylvania DATE AND FOR DURATION OF COO	uipment and I of Proces
exchange of results and exper- ience	exchange visits	le fermentor	ogy FORMS OF COOPERATION	thods for for Micro
knowledge ein computer controle systems plus soft-rware development dpproved Approved	in forma- tion exchange exchange 2001/08/27 : CIA-RDP79	i	EXPECTED RESULTS 400100011-1	the obial
•••	,			

WORKING PROGRAM

Project No.2

5.2		υı	4.	TASK	P	Ŗ
Design and Construction of the computer controlled fermentation unit	Conference to coordinate total design information	Design and demonstration of practical system for computer control the production of single cell protein from hydrocarbon substrate	Investigation of both the theoretical and practical aspects of computer control of fermentation systems	NAME OF TASK OR AND SUB-TASK	PROJECT COORDINATORS:	PROJECT TITLE:
? Inst. Protein Synth.	Yenikeyev- Kazan Inst. Chem.Tech. ? Inst.Protein Synth.	f practical syst	Yenikeyev- Kazan Inst. Chem.Tech.	NAME OF PARTICIPANTS COOPERATING INSTITUTIONS U.S.S.R. U.S.	Dr. Shamil Yeni Dr. Arthur Hump	Engineering Research and Development of the Computerized Simulation, Design and Microbial Technology
} }	Humphrey- U. of P. Erickson- Kansas State Cooney-M.I.T. Jefferis- Widener Univ.	tem for computer control com hydrocarbon substrat	Coony-M.I.T. Humphrey- U. of Penn.		Shamil Yenikeyev, Kazan Institute Arthur Humphrey, University of Per	earch and Develd Simulation, lology
one year 1976-1977	two weeks Fall 1976 U.	of s	1974-1976 two men years M.I.T. one man year U. of P.	DATE AND DURATION OF TASK	nstitute Chemical ty of Pennsylvania	
Consultation on design and construction	conference with key people in attendance approx.5 from each side	fermentation system	exchange of results and experience	FORMS OF COOPERATION	cal Technology unia	Equipment and Methods Control of Processes
optimally designed practical computer controlled fermentor	specification of final design & trial runs	for	knowledge in computer control systems plus software development	EXPECTED RESULTS		ods for es for
Approved For Re	lease 2001/08/27	' : CIA	-RDP79-0079	8A0004001	100011-1	

Approved For Release 2001/08/27: CIA-RDP79-00798A000400100011-1

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puter

SCP fermentation optimal control of Demonstration of

at appropriate

site in USSR

Summer 1978

Consultations

optimal SCP

process

through use of com-

JOINT WRITING AND PUBLISHING OF BOOK ON

6.1

Meetings to plan & outline joint book

Kazan Inst.Chem. Tech.

Yenikeyev-

Humphrey-. U. of P.

Summer 1974

Planning of joint book

assignments

Book outline

& chapter

in connection with task

COMPUTER SIMULATION, DESIGN & CONTROL OF FERMENTATION SYSTEMS

5.3

TASK NUMBER

NAME OF TASK OR SUB-TASK

NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.

DATE AND DURATION OF TASK

FORMS OF COOPERATION

RESULTS EXPECTED

ć.3

Editing and Publishing

Yenikeyev-

Kazan Inst.Chem.

Humphrey U. of P.

1976

and English in both Russian Editing book

Jointly

Published Book

Inst.

of Book

6.2

Writing of individual

Yenikeyev-Kazan Inst.Chem.

Humphrey-. U. of P.

1974-1976

Book manu-

script

Chapters criticism of Exchange and

Inst.

Chapters

PROJECT TITLE:	Engineering Research and Development of Equipment and Methods for the Computerized Simulation, Design and Control of Processes for Microbial Technology
PROJECT COORDINATORS:	Dr. Shamil Yenikeyev, Kazan Institute Chemical Technology Dr. Arthur Humphrey. University of Pennsylvania

WORKING PROGRAM

Project No.2

Approved For Release 2001/08/27: CIA-RDP79-00798A000400100011-1

PROJECT NO. 3

PROJECT TITLE Genetics of Industrial Microorganisms

PROJECT COCRDINATORSDr. Halvorson and Dr. Brown, USA and Dr. S. Alikhanian, USSR

App	roved For Release 2001/08/27	: CIA ⊬ ∾	\-RDP79-00798A(000400 	D+1000111-1
Genetics of		Conference to		Conference to	NAME OF MACK OR SUB-WASK-
Antibiotic producing cultures gee 1.2	Institute of New Antibiotics, Mescoy I. Terosian Institutes, of Antibiotics, Teringrad G. Navasain Institute of Antibiotics, Moscow	develop plans on the ger	S.I. Alikhanian Inst. genctics & selection of in- dustril micro- organisms Moscow	plans on gen	NAME OF PARTICIPANTS AND COOPERATING INSTITUTE U.S.S.R. U.S. genetic methods for improving
Tee 1.2	A. Denvin, NIT. D. Perlein, School of Luarmacy, U. of Misconsin, Madison W.P. Provn, Squibb & Company G. Bradley Modical College of Virginia, Richmond	genetics of antibiotic	H. Walvorson Brandeis U, Waltham, Mass.	of non antibio	ONS industrial
3 /cars 1975-8	2-3 days 1975 bol of ion ibb	producing cult	1-2 days 1975 either with ASM or GSA annual meeting	producing cult	DATE AND DURATION OF TASK microorganisms based o
Exchange of results and personnel. 3 man years USSR 3 man years USA	Conference		Conference Design of A 5 USSR part. research 70 5 USA part. projects 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	,	FORMS OF COOPERATION on approaches of mo
Increased production of antibiotics	research projects projects roved For Release 2001/08/27	: CIA	Design of 8A (projects projects A-RDP79-00798A)	000400	EXPORTO RESULAS OF CHARACTER Lecular of Chocy.

PH.JECH TITHE Genetics of Industrial Microorganisms

PROJECT COORDINATORS Dr. Halvorson and Dr. Brown, USA and Dr. S. Alikhanian,

Арр	roved F	or Release	2001/	08/27 : CIA-	RDP79-00798		00011-1 1번 년
	1.7	,	1.6	1.5		1. (Con 1.4	TASK
	Use of genetic	•	Conference on g	Genetics of non	·	(Continued) .4 Development of	NATE OF TASK OR SUB-TASK
M.F. Shemyakin Institute of Mole- cular Biology, Moscow V.I. Tanyashin Inst. of Biochem- and Physiology of Microorg., Moscow	organisms, Moscow engineering and molecular	V.N. Krylov Institute of Genetics & Selection of Industrial Micro-	genetic engineering	of non antibiotic producing cultures	L. Erokiid, ? Moscow	improved methods for c	NAME OF PARTICIPANTS AND COOPERATING INSTITUTI U.S.S.R. U.S.
P. Wensink Brandeis U., Waltham, Mass. R. Schleif Brandeis U., Waltham, Mass.	biology for	P. Berg Stanford		cultures	M. Mandels Natick, Mass	cellulose utilization	RTICIPANTS INSTITUTIONS U.S.
3 years 1976	strain development	3-4 days 1975-6 Stanford		2-3 years start- ing 1975-6	2 years 1975-6		DATE AND DURATION OF TASK
Coordinated research projects on selected model systems	meeting	Conference 5 USSR in conjunction with an international		Specific research projects Exchange of information	Exchange of reports strains 2 man years USA 2 man years USSR at Post Doc. level		FORMS OF COOPERATION
Improved development of selective microbial systems for genetic engineering	roved F	Exchange of informate of the second of the s	2001/	Coordinging. research Increas	Improve en- zyme produc- tion and ferm tation Fech- nology C	A0004001	EXPECTIND RESULTS 00

(Continued) 1.7 (Continued)

and Physiology of

M.I. Matvienko Inst. of Biochem.

Pouschino

Microorgan.,

SUB-TASK TASK OR

MAI III OF

AND COOPERATING INSTITUTIONS

DURATION OF DATE AND

FORMS OF COOPERATION

TASK

NAME OF PARTICIPANTS

PROJECT TITLE

PROJECT COORDINATORS

PROJECT NO.

w

Dr. Halvorson and Dr. Brown, USA and Dr. S. Alikhanian, USSR Genetics of Industrial Microorganisms

Approved For Release 2001/08/27 : CIA-RDP79-00798A0004001000171 EXPECTED:

PROJECT NO. 3

FROJECT TIME Genetics of Industrial Microorganisms

PROJECT COORDINATORS Dr. Halvorson and Dr. Brown, USA and Dr. S. Alikhanian, USSR

TASK OF AND COOPERATING INSTITUTIONS

THE SUB-TASK OR AND COOPERATING INSTITUTIONS

2 ODevelopment of methods for genetic analysis for insect control of 2.1 Workshop and Tables io o Physiology and genetics of insect pathogens Ahovian, Armenia Inst. Microbiol Genetic Lab., of Nuclear Physics, E. Afrikian organ., Armenia & Selection of M.G. Oganesian Moscow organ., Moscow dustrial Micro-Selection of In-Industrial Micro-Extrachromosome beningrad Kostantinov Ińst. V.V. Sukhodolets Brancn Inst. of Genetics .A. Zakharov Inst. Genetics & Domaradsky Mich. State U. E. Lansing, Mich R. Hansen USDA Peoria, ILL G. St. Julian Madison U.of Wisc., Gerhardt 3 days Oct. 1974 3 days 1975 DURATION OF CINV ELVO TASK 4 20 USA partici. Mich. VII. E. Lansing, nection with spores Workshop in con-8 USSR partici Conference 5 USSR Partici. Armenia 'COOPERATION 5 USA partici. FORMS OF Planning of grams

grams

Planning of prolease 2001/08/27

Approved For Release 2001/08/27 RESULTS
Research preResearch preJect design
07984 Exchange of information? EXPECTED

Ahovian, Armenia Inst. Microbio.

Manhatan, Kansas Research Center, USDA Grain Marketing

E. Afrikian

L. Bulla

1 year 1975-6

or senior scien-Postdoctoral

production

Improved toxin

tist exchange

PROJECT TITLE Genetics of Industrial Microorganisms

PROJECT NO.

PROJECT COORDINATORS Dr. Halvorson and Dr. Brown, USA and Dr. S. Alikhanian,

AND COOPERATING INSTITUTIONS U.S.S.R. NAME OF PARTICIPANTS U.S.

DURATION OF DATE AND TASK

3 years 1976-9

search support Cooperative re-

improvement

doctoral fellows Exchange of post-

COOPERATION FORMS OF

EXPROTED

RESULTS

PROJECT TITLE

PROJECT NO.

Genetics of Industrial Microorganisms

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	PROJECT COORDINATORS Dr. Halvorson and Dr. Brown, USA and
	orson and Dr
	Brown , U
	片
	S. Al
IISR	S. Alikhanian,

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	ω ω		ω N		ω	Development methanol,	Ŕ
	Improved methods		Selection of hy		3.1 Conference on m		NATE OF TYSK OR SUB-YASK
B.V. Simmon Dept. Genetics Leningrad U.	for genetic analysis	S.G. Inge-Vechtomov Dept. Genetics, Lenigrad U.	Selection of hydrocarbon utilization yeasts	S.G. Inge-Vechtomov Dept. Genetics, Leningrad U.	on mutagenesis and recombination in yeasts	of genetic methods to improve industrial strains of yeasts, etc.	NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.
Brandeis U., Waltham, Mass.	in yeasts	R. Mortimer U. of Calif. Berkeley	in i	R. Mortimer U. Calif., Berkeley	tion in yeasts	lustrial strains o	ANTS TUTIONS U.S.
3 years 1975-8		3 years 1975-8		4 <u>-</u> 5 days 1975			DATE AND DURATION OF TASK
Research support Postdoctoral exchange		Research support postdoctoral exchange		Conference Leningrad Theory of mutageness application strain series lection		including utilization of hydrocarbons,	FORMS OF COOPERATION
t Improved theory and methods for meiosis and e sporulation of Ap	Relea	Improved production of hydro- carbon util ping yeasts	27 : (grad Theory of mutagenesis as applied to strain splied to lection A	98A(lrocarbons, 004001	EXPECTI S RESUL IS

PROJECT TITLE Genetics of Industrial Microorganisms

PROJECT COORDINATORS Dr. Halvorson and Dr. Brown, USA and Dr. S. Alikhanian,

Approved For Release 2001/08/2	27 : CIA-RDP79-00798A000400100011-1
	27: CIA-RDP79-00798A000400100011-1 Devel
V.V. Sukho Inst. Gene Select. of organ., Mo M.G. Ogane Inst. Gene Select. of organ., Ar Symposium on Genetic Methods	NAITE OF TASK OR SUB-TASK Development of methods of g 1 Construction of genetic 1 Inst Sele Micr Sele Micr Sele Micr Same
dolets tics & Microscow scow sian tics & Micromenia	NAME OF ARD COOPERATE U.S.S.R Of genetic an enetic strains enetic strains Enst. of Gene Selection of Microorgan., Branch N.T. Zhdanova same, Moscow
H. O. Halvorse Brandeis U. Waltham, Mass. F. Young Rochester Medi	PARTICIPANTS ING INSTITUTIONS U.S. U.S. Lysis of microorganisms for the for amino acid production for amino acid production Lics & U. of Chicago. Ind. Chicago, Ill. Armenia for genetic analysis in Bacillus
3 years 1974-5	ATE AND ATION OF TASK production of years 1974-77
Joint research projects. Exchange of personnel Final reports projects	FORMS OF COOPERATION amino acids Cooperative research support Postdoctoral exchange
Improved genetic system 200 etic system 200 et	EXPECTED RESULTANT Improved spanin developmento 27: CIA-RDP79-0079ain

PROJECT TITLE Enzyme Applications

PROJECT COORDINATOR G.T. Tsao (U.S.A.)

PROJECT NO.

Appro	oved Fo	r Relea	se 2001/08.		A-RDP79-00798	3A000400 ⊷	100011-1 TASK NUMBER	
2.4 Equipment design same	2.3 Stabilization of same	2.2 Process d	Commercial is 2.1 Enzyme is		Moscow S Inst. fo Inst. fo Inst. fo Natural Tollin P 1.2 Microbial Physiology	Search and Isolatio tissue cultures 1.1 Strain selction	TASK OR SUBTASK	
design same	tion of enzymes same	Process development same	isolation and purification of isolation same same	same	Moscow State Univ. N. Inst. for Protein Syn. Inst. for Chem. of Natural Prod. Tollin Poly. Inst. Physiology	l isolation of enzyme producing cultures	AND COOPERATING INSTITUTIONS U.S.S.R. U.S.	
same	same	same	ion of enzymes same	same	N.S.F. Grantees Syn.	strains of	STITUTIONS	I. Be
5 yrs.	5 yrs.	5 yrs.	5 yrs.	5 yrs.	5 yrs.	microorganisms and	DURATION OF	Berezin and K. Kalunyante
joint projects	joint projects	joint research	joint research) projects	joint research projects	exchange and testing to compare strains		ORYS OF OPERATION	nte (U.S.S.R.)
production A	processes and equipments	r Relea	ıse 2001/08.	more productive strains 7	strains 00 PP	3A000400	EXPECTED 11-1	

Approved For Release 2001	,	CIA-RDP7 -⊱	9-00798	A00040	0100011 ს	TASK	
	4.2 Enzyme de	Diagnostic and Ana 4.1 Enzyme-immune	3.3 Multienzyme	3.2 Carrier s	1mmobilized Enzymes 3.1 Theoretical analysis Moscow U	NAME OF TASK OR SUB-TASK	PRC
	Enzyme detection of faint li Moscow Univ. Berrain	nlytical Uses essay	me and/or cofactor same	selection several institutions	and niv.	E OF PARTIC	PROJECT NO. 4
Others	light or sound Univ. of Penn. Graves	of Immobilized Enzymes NSF Grantees	systems same	tions same	modelling N.S.F. Grantees	NATOR G.	PROJECT TITLE
	5 yrs.	5 yrs.	5 yrs.	5 yrs.	5 yrs.	o, I. AND TION O	Enzyme Applications
	joint projects	joint projects	joint projects	joint projects	joint projects)	Berezin & K.A. Kalunyante F FORMS OF COOPERATION	ions
Approved For Release 2001		new CIA-RDP7	processes 79	of new 00-	developmen fo	EXPECTED RESULTS 1.	

Approved For Release 2001/08/27: CIA-RDP79-00798A000400100頁形1

5.4 Cleavage reversal to make peptides and fine chemicals

same

Weetal

5 yrs.

Corning Glass

Symposium on Production and Properties of Immobilized Enzymes

Tsao

Participation in Polymery 74 Conference

Berrezin

5.3 Enzyme production of milk substitutes

TASK OR NAME OF

SUB-TASK

PROJECT NO.

NAME OF PARTICIPANTS

U.S.S.R.

AND COOPERATING INSTITUTIONS

DURATION OF TASK DATE AND PROJECT COORDINATOR G.T. Tsao, I. Berezin & K.A. Kalunyante

PROJECT TITLE Enzyme Applications

FORMS OF

COOPERATION

Technology of Enzymatic Cleavages

5.1 Production of sugar from cellulose L.S. Losyakova Inst. of Biosyn.

of Protein Sub.

U. Cal. Berkeley Wilke and Bassham

joint project

5.2 Fermentable sugars from agricultural wastes L.S. Losyakova

Burnet and Lee

G

yıs.

joint project

joint project

5 yrs.

EXPECIENT PRESULTS

LENSYMES INPROPOSED 1-1

FOR COLTURATION OF COMPANY OF CO

Approved For Release 2001/08/27

joint project

PROJECT NO.

S

PROJECT COORDINATORS Dr. A. Heimpel, USDA, USA and Dr. Olga A. Alioshina

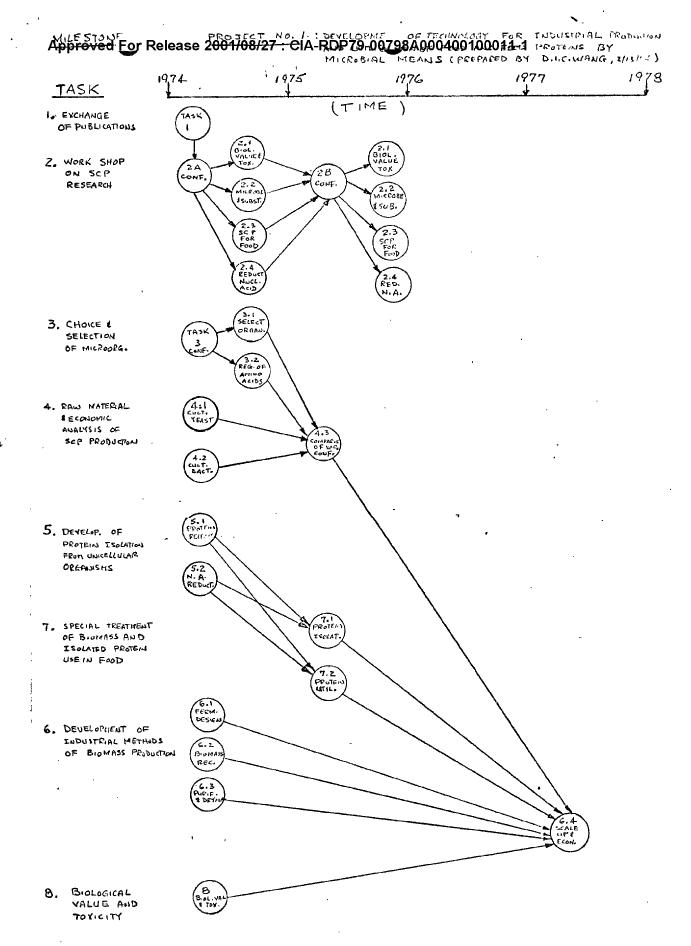
Approved:Fo	r Release	2001/08/27	: CIA-RD P79 ກ	-00798A ₫ 妏0	1 = 1 = 2
Final meeting to prepare report	Second work planning meeting on problems	Research on survey & basic	Working planning meetings on problems 2 % 3	Exchange of publication & bacterial cultures	HAHE OF TACK OR SUB-TACK TACK OR SUB-TACK TACK TACK TACK TACK TACK TACK TACK
=	=	2	3	N. Acad. Armenian, USSR, Kiev, Mos- cow	NAME OF PARTICIE COOPERATING INSTEUR.S.S.R. Bacteria
All previous participants (4 days)	Ξ	=	+ other parti- cipants (3 days)	Cornell Exp. St. Geneva, N.Y. ARS, Beltsville, Md.	PANTS FTUTIONS
Early Spring 1978	Spring 1977	January 1975 - 1976	Iate Fall 1974	Start 7/74 continual exchange	DATE AND DURATION OF TASK
Meeting in US	Meeting in USSR 8-10 US 8-10 USSR	Cooperative Re- search, Correspond- ence	Meeting in US 6-7 US 6-7 USSR	Exchange of cultures and literature	FORMS OF COOPERATION
Prepare funal report de Approve	Plan futue program lea	Partial spru- lation possion bly successful method 0	Plan coop P79 tive program	virulent 4 strains for further work	EXPECTIFY RESULTING

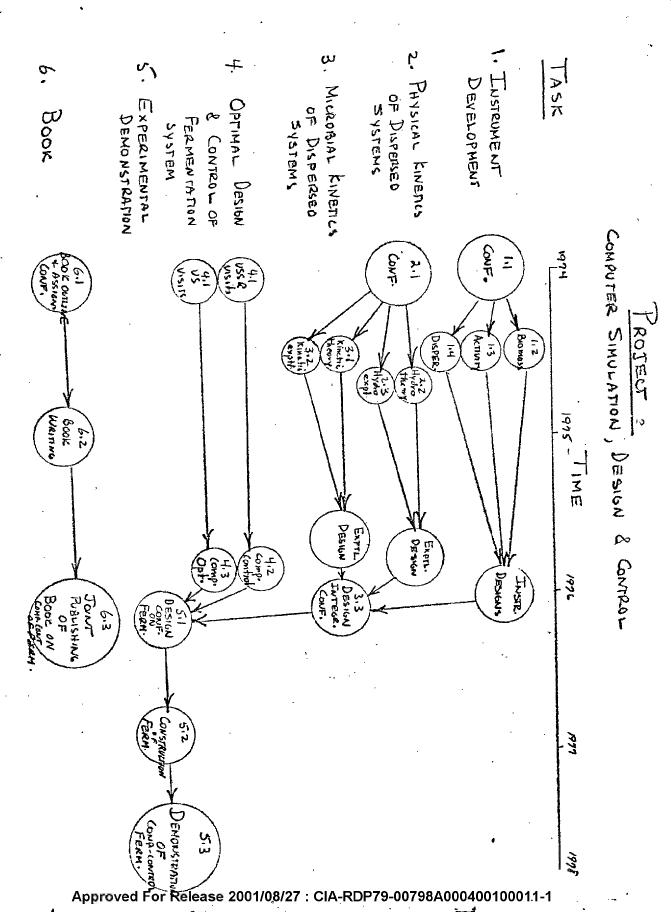
PROJECT NO.

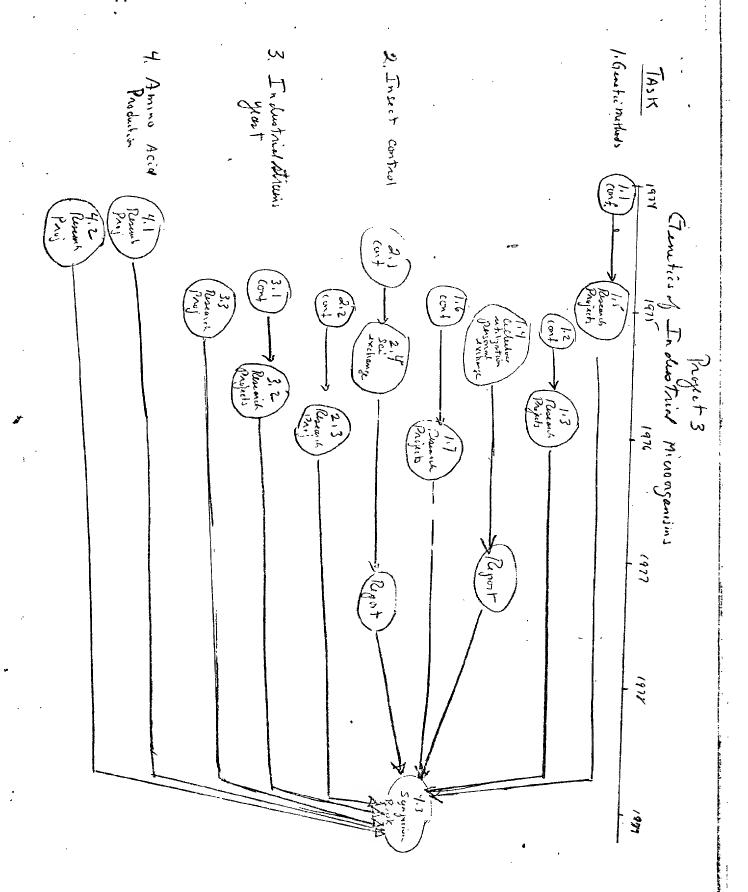
ROJECT TITLE Microbiological Control of Pests of Agricultural Crops

PROJECT COORDINATORS Dr. A. Heimpel, USDA, USA and Dr. Olga A. Alioshina

Approved For Release	2001/08/ 2 ? :	CIA-RDP 9-	-00798A0ੴ04	100100011-1
Approved For Release				Produ
Final meeting	Research on pro- blems 2, 3, & 4	Work planning meeting on pro- blems on 2, 3, & 4	Exchange of cell lines & publica- tions	HAME OF HAME OR HAME OR SUB-TASK Production of Viruses
a	=	=	Ohio State Univ. ARS, Beltsville, Md. & Phoenix, Ariz.	NAME OF PARTICIPANTS AND COOPERATING INSTITUTIONS U.S.S.R. U.S.
June 1976	1974-1976	Early Fall 1974	Start 7/74 continual	DATE AND DURATION OF TASK
Meeting in U.S., all participants	Cooperative re- search	Meeting in USSR 6-7 US 6-7 USSR	Material & literature	FORMS OF COOPERATION
Final repairepse	Method for virus proson and duction and storage	Plan of cyo- erative partice gram CIA-ROP	cooperatie 004	EXPECTING RESULTED R







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Project 1

TOTAL BUDGET ESTIMATE FIVE YEARS WITH PRIORITY

Development of Technology for Industrial Production and Utilization of Food and Feed Proteins by Microbial Means, Including Research Into Different Aspects of Toxicity and Biological Value

rask	Type of Task	Starting Date Durati	on First	Second	Third
Number		of Tas	k Priority	Priority	Priority
			Estimated	Estimated	Estimated
	·		Budget	Budget	Budget
_		•	(\$)	(\$)	(\$)
1	Clerical	July, 1974 5 Years	\$500	\$2000	\$2000
2A ,	Conference	July, 1974 3 Days	\$5000	\$9000	\$9000
2B	Conference	Sept., 1974 3 Days		\$9000	\$9000
3.2	Conference	Sept., 1974 1 Day	\$1000	\$1000	\$1000
4.1	Res. & Dev.	July, 1974 2 to 3 Yea	rs \$50,000	\$110,000	\$250,000
4.2	Res. & Dev.	July, 1974 2 to 3 Yea	rs \$50,000	\$110,000	\$250,000
4.3	Conference	Sept., 1975 1 Week		\$2000	\$2000 ,
5.1	Res. & Dev.	July, 1974 2 to 3 Yea	rs \$30,000	\$80,000	\$160,000
5.2	Res. & Dev.	inly, 1974 2 to 3 Year	rs \$30,000	\$80,000	\$120,000
6.1	Res. & Dev.	July, 1974 2 to 4 Yea	rs \$50,000	\$100,000	\$250,000
6.2	Res. & Dev.	July, 1974 2 to 3 Yea	rs	\$80,000	\$100,00C
6.3	Res. & Dev.	uly, 1974 2 to 3 Year	irs	\$100,000	\$200,000
6.4	Workshop	Sept., 1974 2 Months		\$20,000	\$35,000
7.1	Res. & Dev.	July, 1975 2 to 3 Yea	irs	\$80,000	\$80,000
7.2	Res. & Dev.	July, 1975 2 to 3 Yea	ırs 	\$80,000	\$80,000
8 ***	Res. & Dev.	July, 1974 3 to 5 Yea	rs \$40,000	\$150,000	\$450,000

TOTAL FOR FIVE YEARS

\$256,500 \$1,013,000 \$1,998,000 (1st Priority) (2nd Priority) (3rd Priority)

Approved For Release 2001/08/27 : CIA-RDP79-00798A000400100011-1

BUDGET TIMING OVER FIVE YEARS

Project No. 1

FIRST PRIORITY

isk No.	lst Year	2nd Year	3rd Year	4th Year	5th Year	Subtotal for 5 Years
1	\$500	0	0	0 .	0	\$500
2A •	\$5000	0	0	. 0	0	\$5000
2B	0	0	0	0	0	0
3.2	1.000	-	-	- _	• _	\$1000
4.1	25,000	25,000	-	-	-	50,000
4.2	25,000	25,000	-	•••	-	50,0 00
5.1	20,000	10,000	_	-	-	30,000
5.2	20,000	10,000	_	-	-	30,000
6.1	30,000	20,000		· _	-	50,000
6.2	_	<u>-</u>	_	_	- ·	. 0
6.3		-		-		0
6.4		•	_	_	_	0
7.1	_		· 	-	-	0
7.2	•••	-	_	•••	· _	, o
8	20,000	20,000	<u>-</u>	_		40,000
Total	\$146,500	\$110,000	0	0	0	\$256, 500

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BUDGET TIMING OVER FIVE YEARS Project No. 1

SECOND PRIORITY

ask No.	lst Year	2nd Year	3rd Year	4th Year	5th Year	Subtotal for 5 Years
1	\$1000	\$500	\$500	-	-	\$2000
2A •	\$9000	_	-	-	-	\$90 00
2B	-	\$9000	-	-	-	\$9000
3.2	\$1000	-	-	-		\$1000
4.1	\$55,000	\$55,000	-	-	-	\$110,000
4.2	\$55,000	\$55,000	-	•	-	\$110,000
4.3	<u>-</u>	\$2000	-	-	-	\$2000
5.1	\$35,0 00	\$45,000	-	-	-	\$80,000
5.2	\$30,0 00	\$50,000	_	•••	_	\$80,000
6.1	\$45,000	\$55,000	-	-	-	\$100,000
6.2	\$40,000	\$40,000	-	-	·	\$80,000
6.3	\$45,000	\$55,000	-	-	-	\$100,000
6.4	-	_	\$20,000	-	٠ 🛥	\$20,000
7.1	- ,	\$40,000	\$40,000	-		\$80,000
7.2	-	\$40,000	\$40,000		-	\$80,000
8	\$50,000	\$50,000	\$50,000	-	-	\$150,000
÷**						
Total	\$366,000	\$496,500	\$155,5 00	_	-	\$1,013,000

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BUDGET TIMING OVER FIVE YEARS Project No. 1

THIRD PRIORITY

sk No.	lst Year	2nd Year	3rd Year	4th Year	5th Year	Subtotal for 5 Years
	\$1000	\$500	\$500	_	4. 2	\$2000
1 .		-	••		-	\$9000
2A	\$9000 -	\$9000	_	_	_	\$9000
2B .	61000	-	_	-	-	\$1000
3.2	\$1000	\$100,000	\$50,000		_	\$250,000
4.1	\$100,000	\$100,000	\$50,000	_	-	\$250,000
4.2	\$100,000	\$2000	_		. -	\$2000
4.3	- 460,000	\$70,000	\$30,000	_	-	\$160,000
5.1	* \$60,000	\$50,000	\$30,000	_	_	\$120,000
5.2	\$40,000	\$60,000	\$150,000	-	-	\$250,000
6.1	\$ 50,0 00	\$50,000	\$10,000	-		\$100,000
6.2	\$40,000	\$80,000	\$40,000	_	_	\$200,000
6.3	\$80,000	300,000	\$35,000		-	\$35,000
6.4	-	-	\$40,000		_	\$80,000
7.1	_	\$40,000	\$40,000		•	\$80,000
7.2	- ,	\$40,000		\$110,000	\$120,000	\$450,000
8	\$50,000	\$70,000	\$110,000	ĢII.0,000	7120,000	
Total	\$531,000	\$671,500	\$565,500	\$110,000	\$120,000	\$1,998,000

Approved for Release 2007/08/27: CIA-RDP79-00798A000400100011-1 FIVE YEAR PLANNING FOR PROJECT NO. 2

"Engineering Research and Development of Equipment and Methods for the Computerized Simulation, Design and Control of Processes for Microbial Technology"

> Project Coordinators: Dr. Shamil Yenikeyev Dr. Arthur E. Humphrey

Task No.	Type of Task St	carting Date	Duration	·	2nd Priority	<u>3rd</u> y_Priority
1.1	Conference	July 1974	1 week	10,000		
1.2	Research	July 1974	2 yrs.	130,000		
1.3	Research	July 1974	2 yrs.	130,000		
1.4	Research	July 1974	2 yrs.	USSR		
2.1	Conference	Sept. 1974	1 week	5,000		
2.2	Research	Jan. 1974	2 yrs.	5,000	65,000	
2.3	Research	Jan. 1974	2 yrs.	USSR	05,000	
3.1	Research	Jan. 1974	2 yrs.		65,000	
3.2	Research	Jan. 1974	2 yrs.	USSR	05,000	
3.3	Conference	July 1976	1 mo.	10,000		
4.1	2 Exchange Visits	1975-1976	1 yr.		24,000	
4.2	Research	July 1974	2 yrs.	180,000		100 000
4.3	Research	July 1974	2 yrs.	100,000	180,000	180,000 180,000
5.1	Conference	Fall 1976	2 weeks	10,000		
5.2	Research (consultation)	July 1976	1 yr.	USSR	5,000	
5.3	Consultation	Summer 1977	3 nos.	USSR	10,000	
6.1 6.2	Conference Conference &	Fall 1974	2 weeks	•	~ . <u>.</u>	10,000
	Consultation	Fall 1974	2 yrs.			E0 000
6.3	Consultation & Publishing	Summer 1976	3 mos.			50,000 10,000
				345,000.	349,000.	430,000.
		CUMULATIVE 7	COTALS	345,000.	694,000.	1,124,000.

PROJECT 3 A - Low Budget Approved For Release 2001/08/27: CIA-RDP79-00798A000490109011st Budget C - Full Budget

VENT	EVENT NAME	ESTIMATED COST ¹	PRIORITIES HOH	PRIORITIES WB
1	3rd Meeting Working Group			
2	Conference	\$7,000	A	
3	Conference	\$6,000 ·	A	
4	Research Projects	\$75,000-\$150,000	B Lower C Higher	} per the Bearing
5	Research Projects	\$40,000	В	
6 .	Annual Conference	\$15,000	С	
7	Research Projects	\$75,000-\$150,000	A Lower C Higher	
8	Exchange Personnel	\$75,000	В	
9 .	Conference	\$7,000	В	
10	Research Projects	\$75,000-\$150,000	B Lower C Higher	•
1.1	Workshop	\$7,000	A	
1.2	Conference	\$5,000	В	
1.3	Research Projects	\$75 ,0 00-\$150,000	B Lower C Higher	
14	Research Projects	\$20,00 0	С	
15	Conference	\$5,000	С	
16	Conference	\$5,000	В	
17	Research Projects	\$25,000-\$50,000	E. Rigin	
18	Research Projects	\$50,000-\$100,000	A Lower C Higher	
19	Exchange Personnel	\$40,000	В	
20	Conference	\$4,000	С	
21	Research Projects	\$25,000-\$50,000	A Lower B Higher	
22	Research Projects	\$50,000-\$100,000	A Lower C Higher	
23	Exchange Personnel	\$40,000	В	
24		\$4,000 elease 2001/08/27 : CIA-RDP7		00011-1
25	Symposium	\$30,000	A	

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Squibb & Sons, Inc.

quibb Institute edical Research

Box 4000 eton, New Jersey 08540 Cable: ERSQUIBB NYK

February 26, 1974

Dr. J. M. Leise Senior Staff Associate to the Deputy Assistant Director for Research National Science Foundation Washington, D.C. 20550

Dear Josh:

I have reviewed the priorities set by Harlyn Halvorson on the various events under Project 3 and am in complete accord with the ratings that he has established with one exception. Under event 4, I recommend we set 3 levels of operation for the three possible budgets. A - \$30,000, B - \$75,000, and C-\$150,000. I trust that you will notify us at an early date at what budgetary level we can expect to proceed.

With best wishes,

Sincerely yours,

William E. Brown

cc: Professor H. O. Halvorson

Dean A. E. Humphrey

BUDGET. FLA
4
PROJECT NO

1978	,	160,000	160,000	140,000	460K	130K	140K
1977		140,000	140,000	120,000	400K	120K	120K
1976		120,000	120,000	100,000	340K	110K	100K
1975		100,00	100,000	80,000	280K	100K ·	80K
	\$10,000	\$80,000	\$80,000	3 000,00\$	\$230,000	000*06\$	
PROJECTS 1974,		\$\frac{4}{2}\) O Fermentable sugar \$80 I lowa State O Project 4, Task 5.2			Q.	_	00(6) Project 4, Task 5.3

U.S.-U.S.S.R. Joint Commission on Scientific and Technical Cooperation

U.S. WORKING GROUP ON MICROBIOLOGY

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National Science Foundation
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202-632/5989

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215-594/7084

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Dr. Henry Bungay Vice President for Research and Development The Worthington Chemical Company Freehold, New Jersey 07728

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Dr. Edmund Field Consultant American Oil Company 5719 South Kenwood Avenue Chicago, Illinois 60637 - 2 -

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Dr. George Tsao
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Division of Advanced Technology
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Washington, D.C. 20550

Dr. Daniel I. C. Wang Department of Nutrition and Food Science Massachusetts Institute of Technology Cambridge, Massachusetts 02139

3/15/74

U.S.-U.S.S.R. Joint Commission on Scientific and Technical Cooperation

U.S. WORKING GROUP ON MICROBIOLOGY

U.S. Project Coordinators

Chairman

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Office of the Deputy Assistant
Director for Research
National Science Foundation
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RCA TELEX: 24521 NASCF UR Western Union: 89-2438 NATSCIFOUN

Project Coordinators

1. Development of Technology for Industrial Production of Food and Feed Proteins by Microbial Means

Dr. Daniel I. C. Wang
Department of Nutrition and
Food Science
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

617-253/2126

2. Engineering Research and Development of Instrumentation and Methods for the Computerized Simulation, Design and Control of Processes for Microbial Technology

Dr. Arthur E. Humphrey
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Where available, telex or TWX service identified; otherwise only office telephone numbers listed Approved For Release 2001/08/27: CIA-RDP79-00798A000400100011-1

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- 2 -

3. Molecular Biology of Industrial Microorganisms

Dr. Harlyn O. Halvorson Professor of Molecular Biology Brandeis University Waltham, Massachusetts 02154 617-647/2431

4. Development of Methods of Producing and Using Enzymes and Other Biologically Active Substances for Agriculture

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Program Director
Division of Advanced
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National Science Foundation
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202-632/0648

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 Microbiological Control of Pests of Agricultural Crops

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U.S.-U.S.S.R. Joint Commission on Scientific and Technical Cooperation

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